

Concentrations of Polynuclear Aromatic Hydrocarbons (PNA) in Surface Soils,
Commercial Products, and Foods

Material	Measured PNA Concentration, in Parts per Million by Weight	Reference (See Listing)
Soil (open country, near town)	5 - 120	1
Soil (town near highway)	21 - 300	1
Soil (alpine)	4 - 8	1
Soil (oak forest)	13	2
Soil (conif. forest)	7	2
Used motor oil	85	3
Creosote (wood preservative)	80,000 - 93,000	4
Creosote from treated wood	200,000	5
Coal tar (roofing tar)	61,000 - 70,000	4
Petroleum jelly	13	4
Over-the-counter dandruff shampoos		
Brand A	2,060	5
Brand B	2,320	
Brand C	2,700	
Medicated soap (coal tar-based)		5
Brand A	2	
Asphalt	0.1 - 27 ^{1/}	6
Spinach	0.028 ^{2/}	7, 8
Charcoaled meat	0.0026 - 0.0112 ^{1/}	7, 8, 9
Margarine	0.0026 - 0.0145 ^{3/}	7, 8
Orange rind		
Near highway	25 ^{4/}	10
Desert area	0 ^{4/}	10
Steak (broiled)	0.020 ^{5/}	7

1/ As Benzo(a) pyrene

2/ As Chrysene

3/ As Benzo(b) fluoranthene

4/ As Anthracene

5/ As Pyrene

REFERENCES

1. Blumer, M., W. Blumer, and T. Reich. 1977. Polycyclic aromatic hydrocarbons in soils of a mountain valley. *Environ. Sci. Technol.* 11(12):1082-1084.
2. Youngblood, W. W., and M. Blumer. 1975. Polycyclic aromatic hydrocarbons in the environment: homologous series in soils and recent marine sediments. *Geochim. Cosmochim. Acta* 39:1303-1315.
3. Peake, E. and K. Parker. 1979. Polynuclear aromatic hydrocarbons and the mutagenicity of used crankcase oils. pp. 1025-1039. *In*. A. Bjorseth and A. J. Dennis (eds.) *Polynuclear aromatic hydrocarbons: Chemistry and biological effects*. Battelle Press, Columbus, Ohio.
4. Linjinski, W., I. Domsy, G. Mason, H. Y. Ramahi, and T. Safavi. 1963. The chromatographic determination of trace amounts of polynuclear hydrocarbons in petrolatum, mineral oil, and coal-tar. *Analytical Chemistry* 35:952-956.
5. Pacific Gas and electric Company. 1986. Total PNA Analysis of Over-The-Counter Dandruff Shampoos, Creosote, and Medicated Soap. Unpublished.
6. Wallcave, L., H. Garcia, R. Feldman, W. Lijinski, and P. Shubik. 1971. Skin tumorigenesis in mice by petroleum asphalts and coal-tar pitches of known polynuclear aromatic hydrocarbon content. *Toxicology and Applied Pharmacology* 18:41-52.
7. IARC. 1973. Monographs: Certain polycyclic aromatic hydrocarbons and heterocyclic compounds. Vol. III. IARC, Lyon.
8. White, J. B. and R. R. Vanderslice. 1980. ROM source and ambient concentration data: Review and analysis. U.S. EPA, Research triangle Park, North Carolina.
9. Blumer, M. 1961. Benzpyrenes in soil. *Science* 134(3477):474-475.
10. Gunther, F. A., F. Buzzetti, and W. E. Westlake. 1967. Residue behavior of polynuclear hydrocarbons on and in oranges. *Residue Rev.* 17:81-104.

ROUTING AND TRANSMITTAL SLIP

Date

5-27-86

TO: (Name, office symbol, room number, building, Agency/Post)

Initials

Date

1.

[Signature]

2.

[Signature]

3.

4.

Karen

6-6-86

5.

Action

File

Note and Return

Approval

For Clearance

Per Conversation

As Requested

For Correction

Prepare Reply

Circulate

For Your Information

See Me

Comment

Investigate

Signature

Coordination

Justify

REMARKS

- Start Circular file *done*
- mark w/ new Reg code *APGE*
for ~~gas~~ coal gas. Plant -
See if Maister has already
created one. This site
may be a dupe of one ~~the~~
of PG+E's.
- Ret. to Karen for a FIT PA →

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FROM: (Name, org. symbol, Agency/Post)

Room No.—Bldg.

Phone No.

ick Morgan will
review PA when
complete.

- While FIT won't do
PAs on all PGE
facilities of this type,
we could use one under
our belts to see what
problems are there.
- let's call it a prototype
PA.
- keep this note w/ file.



ecology and environment, inc.

160 SPEAR STREET, SAN FRANCISCO, CALIFORNIA 94105, TEL. 415/777-2811

International Specialists in the Environment

MEMORANDUM

TO: Paul La Courreye, EPA

FROM: William J. Malloch, Ecology and Environment, Inc.

DATE: December 15, 1987

SUBJECT: PG&E Gas Facility, San Francisco, California

EPA ID#: CAD981415268

cc: Martha Walters, Ecology and Environment, Inc.

Summary:

The San Francisco Coke and Gas Company began operation in 1900 in San Francisco, California. The facility used the Lowe gas process to produce gas. The facility produced 650,000 cubic feet a day between 1900-1905. In 1905 the Standard Oil Company purchased the facility and rebuilt the plant, converting it to a water and oil-gas production facility. In 1907 the facility name was changed to Metropolitan Light and Power Company. In 1911 the facility was acquired by a larger local utility company (name unknown). After several expansions of the facility to meet the growing demand for gas, the facility was shut down in 1930 as natural gas became available to the area. The facility was abandoned in 1934. The site is currently used for commercial and retail purposes.

The processes used on-site consisted of combustion of coal and oil. Incomplete combustion results in the formation of many compounds including: polynuclear aromatic hydrocarbons (PNAs), phenolics, light aromatic hydrocarbons, various inorganic sulfur and nitrogen compounds, and trace metals. Of these compounds, PNAs are the most toxic and persistent. Because of the large gas production at this facility, a sampling program was initiated in 1985. Sampling results indicate levels of PNAs (1.5 ppm) below background levels. Levels of lead (480 ppm) were detected above designated levels to protect groundwater and surface water as established by the Regional Water Quality Control Board's "Water Quality Objectives and Hazardous and Designated Levels for Chemical Constituents" (1985).

No information concerning target populations or exposure routes was provided in the Preliminary Assessment provided by PG&E.

T/PGESF3/PAM/WM

RCRA Status:

This facility is not listed in the RCRA data base.

Recommendations/Justifications:

PG&E has submitted the attached information to EPA as a Preliminary Assessment at this time. Although levels of lead are above RWQCB levels for protection of groundwater, no groundwater exposure is expected because there is no groundwater use in the area. Additionally, the commercial uses of the site indicate no potential exposure from the air or surface water routes. Therefore, FIT recommends no further action under CERCLA.

FIT Review/Concurrence:

Martha Watts 12/23/87

EPA Recommendation:



IN REPLY REFER TO:

United States Department of the Interior

NATIONAL PARK SERVICE

GOLDEN GATE NATIONAL RECREATION AREA
FORT MASON, SAN FRANCISCO, CALIFORNIA 94123

RECEIVED
U.S. EPA
REGION 9
COMM. CENTER

A7615 (WR-GOGA)

'86 JUN 24 A2:21

June 17, 1986

Mr. Robert Karfoil
Pacific Gas and Electric Company
Room 2316, 77 Beale Street
San Francisco, CA 94106

Dear Mr. Karfoil:

Enclosed is the signed letter of terms and conditions requested concerning our 680 Beach Street property.

Feel free to contact me should you have any questions or whenever you're ready to conduct the tests.

Sincerely,

Ray McElroy
Park Safety Manager

Enclosures

PACIFIC GAS AND ELECTRIC COMPANY

PG&E



ONE CALIFORNIA STREET, SIXTH FLOOR

SAN FRANCISCO, CALIFORNIA 94111

(415) 972-7600

MAILING ADDRESS:

ROOM 2316

77 BEALE STREET

SAN FRANCISCO, CA 94106

May 23, 1986

Mr. Ray McElroy
Safety Manager
National Park Service
Building 201, Fort Mason
San Francisco, California 94123

Dear Mr. Elroy:

As we discussed in our meeting with Mr. Jim Helton on May 9, 1986, Pacific Gas and Electric Company ("PGandE") is willing to test the exposed surface soils on your property for the presence of residues commonly associated with the operation of a manufactured gas plant. PGandE is offering to perform these tests as an accommodation at no charge to you.

In return for and as a condition to PGandE's assistance, including but not limited to assistance with these tests, you agree not to assert or allege in any proceeding that such assistance is an admission by PGandE or evidence that PGandE has any liability with respect to you or your property. The intent of this provision is merely to ensure that PGandE's rights and obligations, if any, with respect to you or your property shall not be increased or reduced by any assistance PGandE renders.

PGandE therefore asks for authorization to enter your property. The purpose of our entry will be to conduct sampling of the exposed surface soils on your property. Specifically, PGandE will have these surface samples tested for the presence of polynuclear aromatics and certain metals commonly associated with manufactured gas operations. PGandE will share all test results from your property with you and with appropriate government officials.

Mr. Ray McElroy

-2-

May 23, 1986

If you agree to the terms and conditions contained in this letter, please so indicate by signing and returning the enclosed copy.

Sincerely,

Robert C. Karfiol

ROBERT C. KARFIOL

RCK/jm

Enclosure

The undersigned agrees to the terms and conditions set forth in the foregoing letter.

Ray McElroy, Safety Mgr.

Date: *June 13, 1986*



United States Department of the Interior

NATIONAL PARK SERVICE

GOLDEN GATE NATIONAL RECREATION AREA
FORT MASON, SAN FRANCISCO, CALIFORNIA 94123

IN REPLY REFER TO:

N3619 (WR-GOGA)

June 11, 1986

Mr. Nick Morgan
Environmental Protection Agency
Region 9 (T-4-3)
215 Fremont Street
San Francisco, CA 94125

Dear Mr. Morgan:

Enclosed is the letter you requested, which was sent to us by Pacific Gas and Electric Company concerning our 680 Beach Street property. Apparently Dick Davis has forwarded to you a copy of the file concerning the possibility of a manufactured gas plant located on this property.

We intend to pursue this matter as soon as our solicitors have had a chance to review the file. I was pleased to hear that the EPA is developing a sampling plan for this site also.

We will keep both the EPA and PG and E informed on any action we take concerning this matter.

Thank you for your time, good luck on developing the sampling plan and feel free to call me at (415) 556-3103 any time you should have a question.

Sincerely,

Ray McElroy
Safety Manager

Enclosures

cc: Dick Davis, WRO Maintenance and Engineering Services
Mr. Robert K. Karfoil, Pacific Gas and Electric Company

PACIFIC GAS AND ELECTRIC COMPANY

PG&E



ONE CALIFORNIA STREET, SIXTH FLOOR

SAN FRANCISCO, CALIFORNIA 94111

(415) 972-7600

MAILING ADDRESS:

ROOM 2316

77 BEALE STREET

SAN FRANCISCO, CA 94106

May 23, 1986

Mr. Ray McElroy
Safety Manager
National Park Service
Building 201, Fort Mason
San Francisco, California 94123

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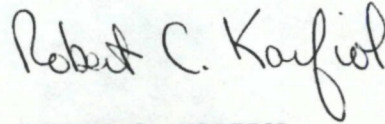
Mr. Ray McElroy

-2-

May 23, 1986

If you agree to the terms and conditions contained in this letter, please so indicate by signing and returning the enclosed copy.

Sincerely,



ROBERT C. KARFIOL

RCK/jm

Enclosure

The undersigned agrees to
the terms and conditions
set forth in the foregoing
letter.

Date: _____

PLEASE KEEP NICK
MORGAN, T-4-3,
974-8918 APPRAISED
OF THE SITUATION AT THIS
SITE,

NM
5/27/86

ROUTING AND TRANSMITTAL SLIP

Date

5/22/86

TO: (Name, office symbol, room number,
building, Agency/Post)

Initials

Date

1. NICK MORGAN EPA

2.

3.

4.

5.

Action	File	Note and Return
Approval	For Clearance	<input checked="" type="checkbox"/> Per Conversation
As Requested	For Correction	Prepare Reply
Circulate	For Your Information	See Me
Comment	Investigate	Signature
Coordination	Justify	

REMARKS

NATIONAL PARK SERVICE (West. Reg.)

Richard D. DAVIS

HAZ. WASTE COORD TEL- 556-7657

NAT'L PARK SERVICE

450 Golden Gate

SAN FRAN 94102

Golden Gate NRA

RAY McELROY

GGNRA Bldg 201

FORT MASON

SAN FRAN 94123

TEL 556-3103

(over)

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FROM: (Name, org. symbol, Agency/Post)

Room No.—Bldg.

Phone No.

ROUTING AND TRANSMITTAL SLIP

Date

5/21/86

TO: (Name, office symbol, room number,
building, Agency/Post)

Initials

Date

1.

Gil

2.

3.

4.

5.

Action

File

Note and Return

Approval

For Clearance

Per Conversation

As Requested

For Correction

Prepare Reply

Circulate

For Your Information

See Me

Comment

Investigate

Signature

Coordination

Justify

REMARKS

I don't think it is wise to sit on this. Ignoring it won't make it go away and the press is bound to find out about this sooner or later.

We need to make every reasonable effort to find out whether or not this stuff is under the warehouse. If it is we need to find out how deep it is. We need to let the Region know about it because they will be the first to be called by the press and they can start the process to get money for cleanup.

DO NOT use this form as a RECORD of approvals, concurrences, disposals, clearances, and similar actions

FROM: (Name, org. symbol, Agency/Post)

Room No.—Bldg.

Phone No.

5041-102

OPTIONAL FORM 41 (Rev. 7-76)

Prescribed by GSA
FPMR (41 CFR) 101-11.206

U.S. GOVERNMENT PRINTING OFFICE : 1984 O - 431-986 (346)

Start a file
something about
Baslett Hazardous
Waste

ROUTING AND TRANSMITTAL SLIP		Date
TO: (Name, office symbol, room number, building, Agency/Post)		5/21/86
1.		Initials Date
2.		
3.		
4.		
5.		

Action	File	Note and Return
Approval	For Clearance	Per Conversation
As Requested	For Correction	Prepare Reply
Circulate	For Your Information	See Me
Comment	Investigate	Signature
Coordination	Justify	

REMARKS

Then the Solicitors need to get involved to see who is responsible for cleanup.

Something should start immediately to prove our good intentions. I think we should get some core samples as soon as possible.

DO NOT use this form as a RECORD of approvals, concurrences, disposals, clearances, and similar actions

FROM: (Name, org. symbol, Agency/Post)	Room No.—Bldg.
<i>Ray</i>	Phone No.

5041-102

OPTIONAL FORM 41 (Rev. 7-76)
Prescribed by GSA
FPMR (41 CFR) 101-11.206

U.S. GOVERNMENT PRINTING OFFICE : 1984 O - 431-986 (346)

ROUTING AND TRANSMITTAL SLIP		Date
		5/16
TO: (Name, office symbol, room number, building, Agency/Post)		Initials Date
1. <i>Tom</i>		
2.		
3.		
4.		
5.		
Action	File	Note and Return
Approval	For Clearance	Per Conversation
As Requested	For Correction	Prepare Reply
Circulate	For Your Information	See Me
Comment	Investigate	Signature
Coordination	Justify	

REMARKS

Helton said the report that you have is different than this one. Could I get a copy of the one you have?

Also do you have the analysis of the soil and if so could I get a copy?

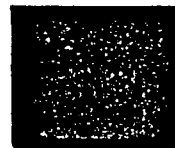
DO NOT use this form as a RECORD of approvals, concurrences, disposals, clearances, and similar actions

FROM: (Name, org. symbol, Agency/Post)	Room No.—Bldg.
<i>Ray</i>	Phone No.

5041-102

OPTIONAL FORM 41 (Rev. 7-76)
Prescribed by GSA
FPMR (41 CFR) 101-11.206

U.S. GOVERNMENT PRINTING OFFICE : 1984 O - 431-986 (346)



PACIFIC GAS AND ELECTRIC COMPANY

PG&E

1170 MARKET STREET • SAN FRANCISCO, CALIFORNIA 94102 • (415) 972-7000

May 12, 1986

Mr. Jim Helton
Business Manager
National Park Service
Golden Gate National Recreation Area
Fort Mason, Bldg. 201
San Francisco, CA 94123

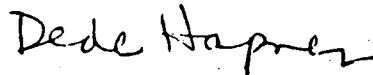
Dear Mr. Helton:

At your request, please find PGandE's guidelines for excavation at former manufactured gas plant sites.

We are sharing these materials as an accommodation to you. These are guidelines developed for PGandE's use. They should not be viewed as universally applicable. We do not assume any liability for their use or misuse by any third party.

We hope these are of value. If you have any questions, please call me at 972-2538.

Sincerely,



Dede Hapner

DH:ejk
Enclosure